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14 September 1946

SUBJECT: Keeler Polygraph ("Lie Detector")

TO : Director of Intelligence, War Department General Staff, The Pentagon, Washington 25, D. C.

Attn: Chief, Security Group (CIC Branch)

INTRODUCTION

1. A request from the Chief, Counter Intelligence Corps Branch, dated 1 July 1946 recommended that a study be made of the capabilities and practicability of utilizing the Keeler Polygraph, commonly known as the "lie detector", in connection with CIC activities both in the Zone of the Interior and overseas.

2. Information was given that this instrument is currently manufactured by the Associated Research Inc., 231 S. Green Street, Chicago, Ill.

3. Communication with the 113th CIC Detachment, Headquarters Fifth Army Area, Chicago, Illinois resulted in a negative reply. Captain Stanley W. Marion, Acting Chief, Investigations Branch, Office of the AG of S, G-2, Fifth Army stated that a thorough search of the records of his headquarters failed to reveal any information in connection with the capabilities and practicability of the Keeler Polygraph. He stated further that it was entirely possible that some of the former CIC agents of his Command who were assigned duties in the Investigative Laboratory may have made a study of the Polygraph but no records were available.

4. On 26 July 1946, the Planning and Liaison Division was requested to make a complete study on the "lie detector".

5. There are three (3) publications on the subject of "lie detection". These are:

- a. "Lie Detection and Criminal Interrogation"
Author, Fred E. Inbau
Published in 1942 by the Williams and Wilkins Co.,
Baltimore, Md.

b. "Lying and Its Detection"
Author, John A. Larson (with George W. Hensy and
Leonards Keeler)
Published in 1932 by the University of Chicago Press

c. "The Lie Detector Test"
Author, William Moulton Marston
Published in 1930 by Richard R. Smith, 120 E. 39 St.,
New York, N. Y.

6. The above listed books were studied with a view of establishing a general background on the field of "lie detection".

7. In the search for information concerning the "lie detector" and "lie detector" techniques, several letters of inquiry were sent to:

- a. Experts in the field of "lie detection"
- b. Manufacturer of the Keeler Polygraph
- c. Professors of Experimental Psychology of several universities
- d. Directors of Criminological Laboratories of several city, state and federal law enforcement agencies

A list of persons, psychology departments and police departments to whom inquiries were addressed appear in Annex I.

DISCUSSION

8. Three (3) basic questions were asked of the professors of Experimental Psychology, as follows:

- a. What is the percentage of reliability of the "deception test" technique as discussed by Dr. William Moulton Marston, when the test is administered and the readings are interpreted by experts? How is this percentage affected by decreased competence of "operators" and "readers"?
- b. Are the differences in physical response, indicated on the graphs, sufficiently pronounced to permit useful determinations of truth or deception, by interpreters of moderate expertise and experience?
- c. What minimum period of instruction would you suggest to develop well qualified operators and interpreters, with daily instruction and exposure to the technique?

9. Seven (7) basic questions were asked of the using law enforcement agencies, as follows:

- a. What is the reliability of "lie detector" determinations?

- b. What qualifications are necessary for persons to satisfactorily administer and interpret a "lie detector" test?
- c. Can the results, if any, of the "lie detector" test be obtained by more common methods of interrogation?
- d. Do you consider the "lie detector" superior to other methods of interrogation or would you recommend it as an adjunct or supplement only? If so, what percentage of total value obtained could be attributed to the "lie detector" test when used?
- e. Which makes or makes of "lie detector" apparatus have you used? How do you compare them as to: sensitivity, durability, ease in operation, and general satisfaction.
- f. How have personnel of your organization qualified to use this technique and equipment?
- g. How have "lie detector test" results been received by your courts? Please indicate what restrictions, if any, were made as to the manner of testing and the manner of presentation of evidence so obtained.

10. The manufacturer of the Keeler Polygraph was asked the following questions:

- a. What is/are the: size, weight, portability, power supply, bodily responses recorded, accessories available, and unit cost of the Keeler Polygraph?
- b. Can the equipment be conveniently adapted to various voltages or battery power supply?
- c. What is the present status of admissibility of "lie detector" evidence in the various courts in the United States?
- d. What is the average length of time required for a reliable test of a subject's veracity, related to ten (10) critical questions? How would extended questioning affect the reliability of the determinations?
- e. Would the Keeler Polygraph, as presently designed, be subject to damage as a result of "rough handling" incident to transportation in military vehicles?
- f. Can the instrument be operated and serviced by personnel having only a short period of orientation and instruction?

- g. Are the indications recorded on the Polygraph tape sufficiently pronounced to permit reliable interpretation by individuals having only moderate training and experience?
- h. What period of time would you suggest as necessary for the training of "readers" of Polygraph recordings, receiving daily instruction?
- i. What evidence can you furnish relating to the reliability of determinations obtained by means of "deception" tests in which the Keeler Polygraph is employed (can the subject beat the machine)?

11. Keeler Polygraph: The Keeler Polygraph, so-called "lie detector", U. S. Patent 1788134, is a practical, scientific instrument to aid in police interrogation and for the study of psychological and physiological reactions. It is manufactured by Associated Research Inc., specialists in instrumentation and testing, 231 S. Green Street, Chicago, Illinois. Two models of the Keeler Polygraph are manufactured, Model 301 and Model 302.

12. Specifications, Model 301: The Model 301 Keeler Polygraph records variations in pulse-blood pressure and respiration. The instrument is furnished complete with four 90-foot rolls of chart, 4 extra pen tips, 1 bottle red recording ink, 1 ink reservoir filler, 1 pen filling pump, 1 instruction book, and line cord for connection to 115 volt 60 cycle AC power supply. Dimensions, 20 x 9 1/2 x 8". Weight, 22 1/2 lbs. This instrument does not have the electro-dermal galvanometer unit, and sells for \$650.00 F.O.B. Chicago, Illinois.

13. Specifications, Model 302: The Model 302 Keeler Polygraph records variations in pulse-blood pressure, respiration and electro-dermal changes. The instrument is furnished complete with tubes, batteries, four 90-foot rolls of chart, 4 extra pen points, 1 bottle red recording ink, 1 ink reservoir filler, 1 pen filling pump, 1 instruction book and one line cord for connection to 115 volt 60 cycle power supply. Dimensions, 20 x 9 1/2 x 13". Weight 46 1/2 lbs. This instrument sells for \$995.00, F.O.B. Chicago, Ill.

14. Power Conversion: The Keeler Polygraph is equipped with standard 115 volt 60 cycle AC power supply only. The only adaptation which can be made in where DC current is used, by the use of a converter.

15. Servicing: Rough handling would cause damage to the machine since it is delicately adjusted to record bodily reactions. The manufacturers recommend that all servicing of the Keeler Polygraph be done at the factory.

16. Training: The manufacturers state that when the Polygraph is to be used for the detection of deception, the question of proper training of the operator is of such major importance that they will not furnish an instrument to a purchaser unless adequate training has been provided. In order to become an experienced Polygraph operator, intensive training is required, not only must the operator become thoroughly acquainted with his instrument but far more important is a thorough knowledge of the proper method of procedure, the art of questioning and the ability to detect when changes in approach and questioning should be made to produce additional reactions on the part of the subject. Training courses in Polygraph operation are conducted at Leonarde Keeler's laboratory in Chicago to individuals who are to operate the Keeler Polygraph. Particular stress is placed on Interrogation, Psychology and Interpretation of Graphs. An individual with the proper background, preferably one with some training in psychology and physiology, should spend at least two weeks in training in this laboratory and then return to his own department and use the technique with an experimental attitude for some six months, and then return to the laboratory for a check-up period. The manufacturers have found this procedure to be satisfactory in training operators for the various police departments throughout the country. The fee for this training is \$100 per student for the two week period.

17. Admissibility of Lie Detector Evidence in Courts: The Federal Bureau of Investigation reports that although testimony concerning information obtained by the use of the so-called "lie detector" has been used in some lower courts, usually by stipulation, this type of testimony is not generally considered admissible evidence. This is based on the 5th Amendment to the Constitution of the United States (compelling a witness to testify against himself).

18. Reliability: Reliability of the so-called "lie detector" is not altogether accepted by leading experts in the field or law enforcement practitioners. Some claim 100% reliability only so far as the recording of physiological reactions are concerned. Basically, the instrument is misnamed when called a "lie detector". Actually, the operator who interprets the results is the "lie detector" and the accuracy of any results depend entirely on his proficiency.

19. Factors Involved in Diagnosis of Deception: There are five main factors involved in the diagnosis of deception, all of which must be considered in conducting the test. These are:

- a. Mental processes involved in the act of conscious deception

- b. Voluntary and involuntary changes in the physiological processes which accompany the mental processes
- c. Examination procedure such as will stimulate the mental processes involving guilt processes without otherwise disturbing the psychological equilibrium
- d. An experienced examiner to conduct the examination properly and interpret the combination of symptoms resulting from this examination.
- e. A combination of sensitive diagnostic instruments such as the Keeler Polygraph

20. Conduct of Test: Since the value of the "deception" test depends upon bodily responses to certain stimuli, all attending circumstances must be devoid of irrelevant factors. External stimuli that cannot be eliminated must be kept constant throughout the examination. Quiet, modest surroundings and a comfortable position add immeasurably to the accuracy of the results obtained. Elimination of extraneous noises, drafts and any factors which will influence the subject is essential. The importance of a satisfactory interrogation room and equipment should not be underestimated. The room should be quiet, modest, uniform in temperature and well-ventilated. Colors should be conservative and should create an atmosphere of comfort and ease. The equipment should consist of a comfortable arm chair for the subject; and ample means for supporting the connections to the subject; a suitable table to hold the Polygraph, work papers, records and accessories; a chair for the operator, a good microphone, amplifier and speakers to provide sound to observers in adjacent rooms. The microphone and amplifier units should be connected with a sound recording device. A transparent mirror to permit a view of proceedings by observers is useful. An average test of two records requires approximately 30 minutes. Extended questioning is sometimes necessary when specific reactions are encountered, in order to clear up the record. A series of questions, either related or not related to the crime in question are prepared. Each question is worded briefly and must call for a "yes" or "no" answer. The examiner's mode of asking questions must be uniform as to rate, inflection of speech and volume of sound throughout the test. Generally, the subject is shown the list of questions prior to the test.

CONCLUSIONS

21. From all available information including publications, comments from the manufacturer, professors of Experimental Psychology and using law enforcement agencies, the use of the so-called "lie detectors" is still in the experimental stage. It is not considered

a proven investigative technique and consequently is used only in selected cases.

22. The percentage of reliability of the so-called "lie detectors" varies among leading experts in the field, including experimental psychologists and law enforcement agencies. At best the reliability is less than 100% and it is known that some persons do not react in a manner susceptible to accurate interpretation. Individuals of a highly nervous state and abnormal persons of unsound reasoning do not react in a manner that can be readily interpreted on the record.

23. The experience of the examiner is the most important factor in arriving at a satisfactory and reliable test. The proper interpretation of the charts produced in an interrogation is dependent on the skill of the operator. The more efficient the examiner the better the results.

24. It will be necessary to send prospective operators of the "lie detector" to Chicago for training.

25. Qualifications of prospective operators of the "lie detector" must be drawn preferably from personnel having experience in psychology and physiology and experience in methods of investigation and interrogation. They must have above average intelligence and possess a congenial and appealing personality.

26. It is the consensus of opinion that the Keeler Polygraph is the most satisfactory instrument for use in "lie detection" and is also generally the most popular.

27. Since "lie detection" and the use of "lie detectors" is an investigative technique which can be used to supplement other methods of interrogation, the Counter Intelligence Corps can definitely make use of this specialized equipment. It can readily be used in interrogation of suspects or witnesses in cases of Sabotage, Espionage, Disaffection, Treason, Sedition, Subversive Activity or Loyalty whenever it may be necessary to establish innocence or guilt.

RECOMMENDATIONS

28. That the incorporation of "lie detector" techniques and the procurement of "lie detector" equipment for general investigative use in the Counter Intelligence Corps not be implemented at the present time.


29. That the Counter Intelligence Corps Center be authorized the necessary funds:

- a. To purchase two (2) sets each of the Model 301 and Model 302 Keeler Polygraph units

- b. To send two qualified regular army officers to pursue the course of instruction at Leonarde Keeler's Laboratory in Chicago

30. That the Technical Laboratory of the Training Division, CIC Center, establish a "Lie Detection" Laboratory for experimental purposes during a trial period of at least six months, with a view to:

- a. Providing an experimental station for the Counter Intelligence Corps
- b. Keeping abreast of all current trends and developments in the field of "lie detection" techniques
- c. Providing a nucleus for future training of a small number of qualified operators
- d. Recommending the use of "lie detection" techniques as applicable and suitable for the general use of the Counter Intelligence Corps both overseas and in the Zone of Interior


Colonel, Infantry,
Commanding.

STATINTL

1 Incl. - Annex I